He was born at Coldenbüttel, in Schleswig, on Sept. 19, 1813, and educated at the Gymnasium of Flensburg and the University of Berlin, where he studied mathematics and astronomy. Having taken his degree in 1836, he tried to obtain an appointment at the Observatory of Copenhagen, but his application was not successful. He then went to Göttingen, to carry on his studies under Gauss. Afterwards he was induced to undertake some scientific investigations relating to Mount Etna.

Having accomplished the task entrusted to him, he was made Director of the Trigonometrical Survey of Sicily. Of this appointment he was deprived in 1848, when he gave great offence to the authorities by expressing sympathy with the revolutionary party. He escaped on board an English vessel to Malta, but soon returned to Sicily, and joined the Sicilian army under Mieroslawski, acting first as a captain, then as a major, in the engineering branch of the service. It was under his direction that Catania and Messina were fortified. When Palermo fell into the hands of the Neapolitans, in May 1849, he fled to France, but soon changed his residence to Constantinople, where he proposed to devote himself in peace to scientific research. Here he secured many friends, and it was intended that a scientific expedition, under the guidance of Peters, should be sent to Syria and Palestine. Various obstacles, however, stood in the way; and the scheme had to be given up after the outbreak of the Crimean War.

He now turned his attention to the United States; and, with recommendations from Alexander von Humboldt, he went in 1854 to Cambridge, Mass., and from thence to Washington, where he obtained an appointment on the Coast Survey. After working for some time in this position, and establishing an observatory at Utica, he accepted, in 1858, the offices of Director of the observatory at Clinton, N.Y. (now known as the Litchfield Observatory), and Professor of Astronomy at the Hamilton College. The duties of these offices he continued to discharge until his death, which took place on the morning of July 19. He was found dead on the road between the observatory and his house, and seems to have died of heart-disease when returning from his work.

In 1874 Peters acted as chief of the North-American Expedition to New Zealand for the observation of the transit of Venus. He discovered no fewer than 48 minor planets and several comets, and much important work was done at Hamilton College under his supervision, his celestial charts and star catalogue being of considerable value. Few astronomers leave a better record behind them, and his death is much regretted.

NOTES.

THE annual excursion of the Belgian Royal Malacological Society took place under the guidance of MM. X. Stainier and J. S. Gardner. The Eocenes from the Thanets to the Lower Bagshots were examined at Herne Bay and Sheppey, where Mr. Shrubsole assisted, and the Gault and Chalk at Dover and Folkestone. The Eocenes seen were pronounced to be in all respects identical with beds of corresponding age in Belgium. The Society proposes to revisit England next year.

AMONG the excursions which have been arranged by the Local Committee of the British Association is one to Malham in Craven. This is to take place on Thursday, September 11, under the guidance of the officers of the Yorkshire Naturalists' Union. The district to be investigated is the plateau of Malham and the escarpment which it forms along the South Craven fault. It includes the only lake in the West Riding, and the remarkably picturesque scenery of Malham and Yoredale. In addition to these attractions, every branch of natural history can be successfully pursued in this locality. This advantage arises chiefly from the diversified character of the geological formations, which include Silurian rocks, mountain limestone, Yoredale shales, and millstone grits. We believe that this will be a popular excursion among members of Field Naturalists' Clubs, who will have an opportunity of observing the methods of work adopted by the Yorkshire Naturalists' Union, and it is hoped that as this will be an essentially working excursion, any field naturalists and geologists who may take part in the Leeds meeting of the British Association will attend the Malham excursion.

WE learn that the French physicians who went to the International Medical Congress at Berlin were much gratified by the cordiality with which they were received.

IN a letter to the *Times* the other day, Mr. John Cordeaux referred to a unique collection of migrating birds formed at Heligoland by Herr Gätke as the result of work carried on during 40 years. This collection, he added, was to be brought to England, "having been secured to the nation by the munificence of a single individual." With reference to this statement, Prof. W. H. Flower writes from the British Museum (Natural History), Cromwell Road, to the *Times* as follows:—"May I supplement the letter of Mr. Cordeaux by saying that the individual by whose liberality Herr Gätke's collection has been secured for the nation is Mr. Henry Seebohm, and that arrangements are being made by which, when the collection arrives, it will be permanently exhibited in this Museum?"

A WORK on "The Birds of the Japanese Empire," by Mr. Henry Seebohm, is nearly ready for publication. It is illustrated with numerous woodcuts. Mr. R. H. Porter is the publisher. The same publisher has in the press "The Birds of Sussex," by Mr. William Borrer. This work is supplied with a map of Sussex, and with six coloured plates by J. G. Keulemans.

MESSRS. MACMILLAN AND CO. announce for publication this week an English translation of Prof. Ostwald's "Grundriss der allgemeinen Chemie" by Dr. J. Walker, of Edinburgh University. This work covers the same ground as the author's classical "Lehrbuch," but the treatment throughout is elementary, and, as far as possible, non-mathematical. The new modes of molecular-weight determination, van 't Hoff's theory of osmotic pressure, Arrhenius's hypothesis of electrolytic dissociation, and the interesting applications of these to purely chemical problems—all receive special attention at the hands of the author. The appearance of the book is particularly well-timed, as we learn that Profs. Ostwald, Raoult, van 't Hoff, and Dr. Arrhenius have intimated their acceptance of the invitation issued to them by the British Association, and will be present at the coming meeting in Leeds.

THE first volume of a work by Prof. A. de Mortillet, on the origin of hunting, fishing, and agricultural pursuits among primitive races, has just been published. It contains many interesting representations of prehistoric implements in the Saint Germain Museum.

ATTENTION has been called in various quarters (England, Belgium, France, and Germany) to the remarkably cold weather prevailing of late years, since 1885, in Central and Western Europe; the yearly averages being constantly under the normal. It now appears from an Algerian record, that these years have been warmer than usual in Algeria. It is also shown that there has been no change in the frequency of north and south winds, while in Europe the north-east winds have been increasing in frequency.

IN the new number of the Journal of the Anthropological Institute the most elaborate paper is one on the Dieri and other kindred tribes of Central Australia, by Mr. A. W. Howitt. There are also papers on characteristic survivals of the Celts in Hampshire, by Mr. T. W. Shore; skulls dredged from the Thames in the neighbourhood of Kew, by Dr. J. G. Garson; and a new spirometer, by Mr. W. F. Stanley. In the paper on Celtic survivals in Hampshire, Mr. Shore refers to the feeling with which the May-day sunrise was regarded by the ancient Celts. "This May-day sunrise," he says, "was certainly reverenced in mediæval Christian time as well as in pagan Celtic time, for the line of about 20° north of east is the line of orientation of a large number of the oldest churches in Hampshire, and of many in other counties. It is a common orientation among the oldest churches of Hampshire, in which county there are as many as seventy examples of it. I cannot explain this on any other ground than the survival of a reverence for the May-day sunrise from Celtic pagan time to Saxon Christian time, and under a modification to a later date. It appears to me that, as there is evidence of the survival of part of the Celtic people, it is not surprising to find that traces of their May-day customs have survived also. It is of course possible that in this common line of orientation of many old churches we may see all that remains of one of the customs of the old British Christianity which existed before the coming of the Saxons."

According to the *Journal de la Chambre de Commerce de Constantinople*, quoted by the *Board of Trade Journal*, the silk section of the Agricultural Society of Moscow has offered a prize of 500 roubles for the best work on the anatomy and embryology of the silkworm. Works on this question must be sent not later than January 1, 1892.

The Rio Negro Salt Company seems to have had an interesting stall at the Rural Exhibition recently held at Palermo, near Buenos Ayres city. The Buenos Ayres *Standard*, in an article quoted by the *Board of Trade Journal*, thus calls attention to the subject:—"Here, in an unpretending but exhaustive manner, are displayed the products of those vast *salinas* or salt lakes which lie some few miles north of the town of Patagones, and which this company has recently commenced to work. There are large blocks composed of big crystals taken in the rough from the *salinas;* barrels of natural brine; compressed cakes for cattle; coarse salt for hides and meat curing; ground salt for kitchen use; and refined salt, dazzling as snow, and in every way equal to the English bottled salt, for use at the domestic table; in short, salt in every form that can be desired either for practical wants or the dainty demands of luxury. Pamphlets are distributed containing analyses by eminent men of science, which demonstrate the excellence and purity of its quality, and its adaptability for all known purposes. As regards quantity, we were informed that a calculation had been made that in a given year it would be possible to take from the Rio Negro lakes, occupying an extension of about nine square leagues, upwards of two millions of tons, and that, in the ensuing season an equal quantity of salt would be found, owing to the fact that every winter the lakes became filled with a brine of a density of from 25° to 32°, which in due time becomes a solid cake of salt."

A *Zeitschrift für Psychologie und Physiologie der Sinnesorgane* (*i.e.* organs of sense), has been recently started in Germany (April), under the editorship of Herren Ebbinghaus and König, the former of whom is known for some remarkable researches on the memory, and the latter for his studies in physiological optics. Among the contributors are Herren Aubert, Exner, Helmholtz, Hering, and other eminent men of science. The following are some of the subjects that have been dealt with: disturbance of the perception of very small differences of brightness by the proper light of the retina: simultaneous contrast; disappearance of after-images in eye-movements; memory of regularly successive and equal sound-impressions.

In the *Victorian Naturalist* for June, Mr. G. Lyell, Jun., of South Melbourne, notes that while walking along the edge of a mountain stream in Gippsland last January he observed a peculiar habit of the Victorian butterfly, *Papilio macleayanus.* One of these butterflies was seen to alight close to the water, into which it backed till the whole of the body and the lower part of the hind wings were submerged, the two forelegs alone retaining their hold of the dry land. After remaining in this position for something like half a minute it flew away, apparently refreshed. "During the morning," says Mr. Lyell, "I noticed quite a number doing the same thing. In one instance no less than four were to be seen within a space of not more than three yards, and to make sure that I was not deceived I captured several as they rose from the water, and found in each case the body and lower edge of the hind wings quite wet. While in the water the fluttering of the wings, so noticeable at other times, was suspended, and so intent were the butterflies in the enjoyment of their cold bath that they would hardly move, even when actually touched by the net. Apparently the heat of the weather drove them down to the water, as immediately they emerged they flew up again to the hill-sides. I have often noticed butterflies of the *Nymphalidæ* family settling near the pools, and apparently imbibing the moisture from the damp sand round the edges, but never before have I seen butterflies enter the water. Possibly it may be a peculiar habit of this particular species or genus. Numbers of the white butterfly, *Pieris harpalyce*, were flying about at the same time, but I noticed none alight near the water."

Some interesting observations on the growth of vegetation in the numerous lakes to the east of the Baltic have been lately made by Herr Klinge (*Engler's Bot. Jahrb.*). This growth depends on the mean direction of the wind during the period of vegetation. As south-west winds prevail in that region, the south-west border of a lake is protected, and the grassy and mossy growth naturally begins there, and spreads by degrees round the north and south ends. The north-east bank, on which break the waves from the south-west, shows hardly any trace of vegetation. It is generally steep, and tends to retire under the action of the waves. Something similar is met with in the Baltic: shore-meadows occur in the islands only on the east, wind-protected coasts. Further, rivers are displaced in the direction of the prevailing winds, eating away their eastern banks, while the western grow. The dead arms of the lower Embach are, with few exceptions, on the south side of the river, which, under the action of the wind, has been displaced northwards, *i.e.* (with reference to its direction) to the left, and so, contrary to Baer's law of river-courses. Indeed, the author rejects this law, and holds the principle of displacement according to prevailing winds to be universal. It is noteworthy that this relation has of late been pointed out by several Continental observers independently. Herr Klinge further finds that in the region east of the Baltic, hygrophilous (or moisture-loving) plants grow on the south-west side of the hills, and xerophilous plants on the north-east side.

The Märjelen Lake, which lies in Upper Valais, lately burst the glacier dam which lay across the valley. According to the Swiss *Vaterland*, a peasant who was close to the lake at the time declares the scene was most terrible and indescribable. When the ice dam gave way, the vast mass of water came tumbling out, sweeping away the huge fragments of the glacier, with the rocks upon it, tumbling into the crevasses, bursting them up in turn, and rising over the glacier in gigantic waves, again to carry all before it. Just at the end of the glacier the valley had narrowed into a little defile, while the face of the glacier was some hundreds of feet high. The water seemed to have tunnelled under the ice, which, attacked above and below, gave way at last with a deafening crash, while the flood hurried down the mountain-side into the Rhone. The lake is nearly 8000 feet above the sea-level, and usually discharges its surplus water by subterranean channels, occasionally bursting its ice barriers as on the present occasion. The cantonal Government are constructing an overflow canal, which, it is hoped, will put an end to these periodical outbursts.

IN a paper printed in the new number of the Transactions and Proceedings of the New Zealand Institute, Mr. Taylor White describes an extraordinary meteor which he saw at Wimbledon, Hawke's Bay, on May 4, 1888, between 8 and 9 o'clock p.m. The nucleus, or head, was of oval form, of a transparent light-yellow colour, as of iron at a white heat. The tail was in the form of the tail of a pheasant, expanded—that is, the two centre streamers were of uniform length, the outer ones gradually shortening, so that the outermost streamer on either side was very much shorter than those in the middle. These streamers were of a dull, opaque orange. They were distinctly divided each from each by dark bands, which consisted of several fine black lines, to, probably, the number of five in each band. Mr White is unable to fix the number of orange streamers, but would guess ten as probably correct. The colours blue and green were also certainly present. No sound was audible while the meteor was in view. "But," says Mr. White, "after I had gone into the house, and was describing what I had seen, the sound of its striking the earth or sea was heard—a loud and lengthened noise, to me like the violent shaking of all the forest trees, and evidently above ground, thereby differing from the sound accompanying an earthquake—coming from the westward; and this was followed, after a hardly perceptible interval, by a fainter sound, like an echo, to the north-east. The time which elapsed till the sound was heard was from three to five minutes." Various New Zealand daily journals gave full descriptions of the phenomenon at the time. According to the *New Zealand Times*, the apparent size of the meteor was "quite half that of the full moon."

THE editor of the Journal of the Royal Agricultural and Commercial Society of British Guiana contributes to the June number some interesting notes on luminous larvæ. Speaking of a form referable to the *Elateridæ*, or spring beetles, he says its luminosity, when observed in a dark place, is singularly striking and beautiful. The light is emitted along the whole length of the body—the head, the front part of the anterior segment, and the last segment of the body, being altogether luminous, while each intermediate segment gleams from a small area on each side of the back, two regularly-arranged rows of golden brilliants being thus observable. The light is continuous, and very bright, but it is intensified when the little creature is irritated. At intervals, one or more of the dorsal lights will be observed to be very dull or nearly extinguished, but apparently they are never quite put out.

MR. T. D. LATOUCHE, who contributes to the Records of the Geological Survey of India a paper on the sapphire-mines of Kashmir, takes the opportunity to offer some remarks on the extent to which the natives of India know the mineral resources of their country. He thinks he is not far wrong in saying that in very few instances in India have useful minerals been discovered in localities that were unknown to the natives, and in which the ores had not been worked by them at one time or another. Even the more uncivilized hill tribes are more or less well acquainted with the minerals their hills contain, and are by no means in the condition of the Blacks of Australia or the Bushmen of Southern Africa, in whose country the European prospector has found so great a field for his energies. To take a single instance: the Khasis of Assam, who, till the beginning of the present century, had hardly felt the influence of Western civilization, have for ages obtained their iron from an ore which occurs as minute grains of magnetite disseminated in the granite of their hills. Many a highly-trained European geologist might justly have been sceptical as to the possibility of obtaining a productive iron ore from granite, and would very possibly have passed the rock over as being utterly useless for such a purpose. Yet the Khasis discovered the mineral, and in all parts of the hills ancient heaps of slag testify to the use they made of their discovery; moreover, they obtained the ore by a process which was ingenious and even scientific—in fact, a kind of hydraulic mining somewhat similar to the latest process devised for obtaining gold in California. Can it be doubted that, if any other useful minerals existed in their hills, the Khasis would have found and worked them long ago? Similarly, in Kashmir, any mineral deposits that exist are probably well known to the natives, and, if useful, are already worked, and these are not of any great importance.

AT a recent meeting of the Wellington Philosophical Society, New Zealand, Mr. Hulke exhibited a specimen of a strange spider that carried its young on its body without web or filament, but simply attached to the body, until they were able to run by themselves.

MR. JOHN WHELDON has issued Part I. of a catalogue of botanical works, including the library of the Rev. M. J. Berkeley.

THE Glasgow and West of Scotland Technical College has issued its Calendar for the year 1890–91. The main objects of this institution are to afford a suitable education to those who wish to qualify themselves for following an industrial profession or trade, and to train teachers for technical schools.

WE have received the author's Hairless Paper-Pad Holder and Paper-Pad, issued by the Leadenhall Press. The Paper-Pad consists of a block of fifty sheets (7½ × 8¾) of smooth and cream-tinted paper mounted together on a stout piece of blotting-paper, the price charged being only that for common scribbling-paper. The Paper-Pad holder is made of light wood, and should be grasped by the left hand, the right hand being free to travel over the surface of the paper-pad which is placed on it. After each sheet is used, it is torn off and placed under the pad and so blotted, and by this means the height of the pad and holder is kept constant. For writing in railway carriages, and for reporting, this form of support will be most serviceable, and it might also be used for the support of sketching-blocks.

MESSRS. MARLBOROUGH, GOULD, AND CO. are issuing what they call Marlborough pamphlet cases, the object of which is to preserve pamphlets from dust and destruction. The cases have no springs or other contrivances that could injure the contents by pressure, and in the bookshelf they resemble ordinary volumes, being "rounded and cloth-backed." The makers have sent us a case specially intended for numbers of NATURE.

THE additions to the Zoological Society's Gardens during the past week include two Brown Bears (*Ursus arctos* ♂ ♀) from Russia, presented respectively by Mr. A. C. de Lafontaine and Mr. D. B. Gellibrand; a Panolia Deer (*Cervus eldi* ♂), a Common Goat (*Capra hircus* ♂) from British Burmah, presented by Mr. Charles C. Galbraith; a Water Pipit (*Anthus spipoletta*), European, presented by Commander W. M. Latham, R.N., F.Z.S.; ten Common Chameleons (*Chamæleon vulgaris*) from North Africa, presented by Mr. W. Mauger; seven Oyster catchers (*Hæmatopus ostralegus*), European, purchased; an Axis Deer (*Cervus axis*), born in the Gardens.